

**Statement for the Record**

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**Before the Subcommittee on Environment, Technology and Standards  
Of the House Committee on Science  
May 19, 2004**

Good morning Chairman Ehlers, Congressman Udall, and Members of the Subcommittee on Environment, Technology and Standards.

I am pleased to have this opportunity to appear before you today to report on how the Science and Technology Directorate of the Department of Homeland Security (DHS) and the U.S. Environmental Protection Agency (EPA) are coordinating on homeland security research and development activities in the areas of water systems and building security. I commend you for your interest in and support of the federal effort to protect the nation's water supply and critical facilities from chemical, biological or radiological/nuclear attack and to ensure that the proper systems are in place to respond effectively in the event of any such attack.

A chemical, biological or radiological/nuclear attack against our water supply or private public facilities could result in a large-scale loss of life and be detrimental to our economy.

Central to the Department's mission is to reduce security threats and to protect the United States from terrorist attacks — including those directed at our water supply and buildings. We are committed to working with federal, State, tribal, and local authorities to prevent any such attack.

Building security is also an integral part of any plan to protect the homeland. We know that landmark buildings and buildings that draw large numbers of people are attractive targets for terrorists. The nation needs new and improved technologies to protect these structures.

### **Homeland Security Presidential Directive 10**

Homeland Security Presidential Directive 10 (HSPD10) – Biodefense for the 21<sup>st</sup> Century, issued last month, provides a comprehensive framework for the nation's biodefense and among other things, delineates the roles and responsibilities of federal agencies and departments in continuing their important work in this area.

Decontamination and water security are key elements in the President's integrated biodefense strategy. The need for biodefense and the challenges we face implementing it are great:

- Biological attacks could potentially contaminate significant portions of an urban area;
- Affordable, timely approaches for cleaning up contaminated areas remain a serious challenge. For example, the decontamination of the Brentwood Post Office, following the anthrax-in-the-mail events of October 2001, cost about \$100 million, and took over a year to accomplish.
- Recent studies have identified the need for more effective measures to safeguard our water supplies against attacks.

## **Roles and Responsibilities**

Three presidential directives designate the agencies responsible for leading and supporting the effort to address the potential threat of biological attacks, attacks on our water supply, and affordable timely decontamination should such attacks occur. Specifically, HSPD-7 Critical Infrastructure Identification, Prioritization and Protection and HSPD-9 Defense of United States Agriculture and Food, have assigned the EPA as the lead agency to enhance the protection of the nation's water supply. HSPD-10 Biodefense in the 21<sup>st</sup> Century, has likewise designated EPA as the lead agency to coordinate the development of strategies, guidelines and plans for decontamination following a biological attack. We fully support the EPA in these efforts.

While the HSPDs designate EPA as the lead in these areas, they also specify the other departments and agencies that will support EPA in these efforts. The directives recognize the multi-disciplined nature of the challenges before us and the need to effectively utilize the particular expertise and capabilities of the other departments and agencies. Thus while EPA provides overall leadership and coordination, the Departments of Homeland Security and Defense will assist by providing needed detection and decontamination technologies to EPA as well as integrated systems approaches; and the Department of Health and Human Services can assist in the understanding of the environmental microbiology and the resulting health effects.

The actual coordination of these roles and efforts is done at multiple levels and through multiple vehicles that include high-level interagency policy and planning committees, interagency working groups on specific project areas, and collaboration on individual projects. The DHS Science and Technology Directorate is working closely with EPA's National Homeland Security Research Center in all these venues.

## **EPA and DHS Science and Technology Areas of Collaboration**

Water security and building decontamination are two significant areas of coordination and collaboration for EPA and DHS.

### **Building Decontamination and Biological Research**

The EPA's Safe Buildings program addresses three areas of importance to near-term improvements in building decontamination. These include the materials compatibility of the current leading candidates for decontamination with the various materials present in a building; the appropriate sampling techniques and protocols for sampling the variety of porous and non-porous surfaces encountered in a building to assess any residual contamination; and methods for reducing the amount of contaminated waste.

DHS has a number of complementary activities in this area. DHS, in collaboration with the EPA, Centers for Disease Control, the National Institute for Occupational Safety and Health, and the San Francisco International Airport, is conducting an integrated systems program to develop pre-approved plans and decontamination agents for restoration of

airports as a first step in extending these capabilities to a broad range of facilities. In support of this, DHS has commissioned the National Academy of Sciences to conduct a study titled “How Clean is Safe?” This study will aid in understanding and establishing appropriate clean-up levels for decontamination of public facilities affected by exposure to harmful biological agents. DHS is also sponsoring a number of studies on improved gas phase decontamination technologies and the systems to deliver them.

An important vehicle in coordinating these and other activities is the Building Protection Working Group, which meets on a monthly basis. This working group is co-chaired by DHS and EPA and includes the Defense Advanced Research Projects Agency, the Department of Defense, the National Institute of Standards and Technology, the Centers for Disease Control and Prevention, the National Institute for Occupational Safety and Health, the United States Postal Service, and the Government Accounting Office.

#### Building Decontamination and Radiological/Nuclear Research

DHS is also working to coordinate and resolve issues concerning radiological decontamination. One area of focus addresses DHS/federal government requirements for radiological and nuclear decontamination research, development, test and evaluation needs. We are also coordinating with EPA in an effort to define standards for achieving “clean enough” status of target areas and water supplies following a nuclear or radiological attack. DHS is working with EPA to ensure that these standards get defined in a timely manner and to an extent that will be physically achievable while minimizing economic impact.

#### **Other Federal Government Work and Collaborations**

In the area of medical treatments to contaminated people, DHS is coordinating with Health and Human Services to ensure that the necessary radiological medical diagnostic tools and treatments are efficaciously developed.

In addition, DHS is collaborating with the Defense Advanced Research Projects Agency (DARPA) on the first phase of an integrated radiological decontamination program. The program will address radionuclide capture decontamination, wide area detection, verification and modeling.

#### **Other Federal Government Work Outside of DHS**

DHS is also aware of and following the progress of several other efforts within the federal government. The Technical Support Working Group (TSWG) is supporting research on radionuclide fixing technologies. The Department of Energy has significant experience in radiological site clean up of its contaminated weapons facilities, and the Department of Defense has programs focused on decontamination of military assets.

## **Water Security**

EPA is currently performing research on identification of drinking water contaminants, analytical methods, monitoring systems, contingency planning, and infrastructure interdependencies to protect wastewater collection, treatment and infrastructure but has not focused previous efforts on new technologies for large-scale urban radiological incidents. EPA is also initiating a Preliminary Scoping and Assessment Study to better define problems related to water quality likely to be encountered in response to large-scale urban radiological contamination incidents.

EPA's strong R&D program on water security encompasses threat assessments and prioritization, modeling the flow of water with potential contaminants through complicated water distribution systems, and field testing and refining these models in "real-world" systems and collaborations with the U.S. Army's Edgewood Chemical and Biological Defense Center. The Center performs tests with actual biological agents in a special constructed water distribution loop at that facility.

To complement these activities on the biological front, DHS is conducting an end-to-end systems study of a high-threat water contamination scenario to characterize all aspects of the problem – from agent introduction, through detection and response, to decontamination and restoration. DHS is also beginning an integrated systems demonstration to explore and test concepts for near-term monitoring architectures.

In addition to these targeted "water security" activities, DHS has a major program in bio-warning (BioWatch) and in developing the associated detection systems and the underlying biosignatures and assays that are key to the highly sensitive detection of biological agents with the very low false alarm rates that are required for an effective biological monitoring system. Many of the system concepts and approaches, as well as the specific technologies, should find direct applicability both in near- and longer-term water monitoring systems.

As with the building protection activities, an active working group (the Water Distribution Systems Research Consortium) brings together researchers from the various departments and agencies with the appropriate user communities and national organizations.

## **Gaps and Future Directions**

Because of a sense of national urgency, the activities I've addressed here have focused on optimizing currently available technology for improved near-term solutions. They do not address the longer-term needs inherent in an affordable and timely integrated biodefense and the responsibilities actually called out in the HSPD 10. For example, the building decontamination systems under development will still be too costly and slow for large-scale clean-ups, although they are a significant improvement over those used for Brentwood. Furthermore, the underlying experimental data base for setting clean-up standards and performing risk assessments is extremely sparse. Little is known about the

dose-levels at which individuals get sick or about the persistence of an agent once it is released into indoor and outdoor environments or our water distribution systems. Yet these are critical to executing the responsibilities called out in HSPDs 7, 9, and 10.

## **Conclusion**

In closing, I'd like to say that the Department looks forward to continuing to support EPA in its role as lead agency in the areas of building decontamination and water security. We view this collaborative work as necessary and vital to safeguarding the health and safety of the American public and an important part of our mission to prevent, protect against, respond to and recover from to acts of terror against the nation.

Mr. Chairman, Members of the Subcommittee, this concludes my remarks. I will be happy to take your questions now.